

REMARKS

In the final Office Action, dated March 17, 2010, the Examiner:

- rejects claims 8 and 9 under 35 U.S.C. § 103(a) as allegedly unpatentable over ALFIERI (U.S. Patent Application Publication No. 2002/0099849) and SHAFER (U.S. Patent Application Publication No. 2002/0198974);
- rejects claim 23 under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS (U.S. Patent No. 6,687,220) and SHAFER;
- rejects claims 1 and 16 under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS, ALFIERI and SHAFER; and
- rejects claims 24-26 under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS, SHAFER and ALFIERI.

Applicant traverses these rejections.

By way of the present amendment, Applicant proposes amending claims 1, 8, 16, and 23 to improve form. No new matter has been added by way of the present amendment. Claims 1, 8, 9, 16, 23-26 and 28 are pending.

Allowable Subject Matter

Applicants note with appreciation that claim 28 is allowable over the art of record.

Rejection under 35 U.S.C. § 103(a) based on ALFIERI and SHAFER

Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over ALFIERI and SHAFER. Applicant traverses this rejection.

Amended independent claim 8 recites a network point-of-presence (POP)

comprising a single physical router having a plurality of resources, including logic resources, including routing processes to determine routing for received packets and forwarding processes to forward the received packets to an appropriate destination; and physical resources comprising control resources and data resources, the control resources including at least one routing table and the data resources including physical specifications of the single physical router; at least one backbone router, having a routing capacity, implemented, at an end-point of a high capacity network link, as a virtual router by the single physical router; and at least one regional router, having a routing capacity that is below the routing capacity of the at least one backbone router, implemented as a virtual router by the single physical router, where the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user, in order to implement different device-implemented virtual router resource sharing configurations based on different sets of network requirements, where the resource sharing configurations, in conjunction with the input by a user, specify which of the routing processes, the forwarding processes, the control resources, and the data resources are to be shared between the backbone virtual router and the regional virtual router routers and specify which of the routing processes, the forwarding processes, the control resources, and the data resources are to be separately implemented by the backbone virtual router and by the regional virtual router. ALFIERI and SHAFER, whether taken alone or in any reasonable combination, do not disclose or suggest one or more features of amended claim 8.

ALFIERI and SHAFER do not disclose or suggest that the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user, in order to implement different device-implemented virtual router resource sharing configurations based on different sets of network requirements, where the resource sharing configurations, in conjunction with the input by a user, specify which of the routing processes, the forwarding processes, the control resources, and the data resources are to be shared between the backbone virtual router and the regional virtual router routers and specify which of the routing processes, the forwarding processes, the control resources, and the data resources are to be separately implemented by the backbone virtual router and by the regional virtual router, as recited by amended claim 8. The Examiner admits that ALFIERI does not disclose resources that are modifiable by a user and relies on ¶ 0004 of SHAFER for allegedly disclosing this feature. (Office Action, p. 4.) While not acquiescing in the Examiner's allegation regarding previously presented claim 8, Applicants submit that this alleged disclosure of SHAFER does not disclose or suggest the above-mentioned feature of amended claim 8.

Paragraph 0004 of SHAFER does not disclose or suggest that the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user, in order to implement different device-implemented virtual router resource sharing configurations based on different sets of network requirements, where the resource sharing configurations, in conjunction with the input by a user, specify which of the routing processes, the forwarding processes, the control

resources, and the data resources are to be shared between the backbone virtual router and the regional virtual router routers and specify which of the routing processes, the forwarding processes, the control resources, and the data resources are to be separately implemented by the backbone virtual router and by the regional virtual router, as recited by amended claim 8. Rather, this section of SHAFER discloses a network management interface that provides access to software modules and other resources on a router. The network management interface allows a user to configure the router to more efficiently manage router resources and to manage relationships with other routers.

Applicant notes that this section of SHAFER does not disclose that the management interface allows a user to configure a sharing of resources between routers. Rather, SHAFER discloses that the management interface allows a user to manage relationships with other routers. The Examiner makes an unsupported assumption that managing relationships with other routers reasonably corresponds to configuring a sharing of resources between routers. Applicant submits that relationships between routers (for example, how data is transmitted an/or received) may be managed without sharing resources. Therefore, Applicant submits that SHAFER's disclosure that a management interface allows a user to manage relationships with other routers is insufficient to reasonably disclose or suggest configuring a sharing of resources between routers.

Moreover, even if the management interface of SHAFER could reasonably be construed as disclosing configuring a sharing of resources between routers, Applicant submits that amended claim 8 recites more than just configuring a router. Rather, claim 8 specifically recites that the backbone virtual router and the regional

virtual router reconfigurably share resources, of the single physical router, based on a plurality of resource sharing configurations that in conjunction with a user input, specify which of the routing processes, the forwarding processes, the control resources, and the data resources are to be shared between the backbone virtual router and the regional virtual router routers and specify which of the routing processes, the forwarding processes, the control resources, and the data resources are to be separately implemented by the backbone virtual router and by the regional virtual router. Thus, amended claim 8 specifically recites that the router various processes and resources can be reconfigured, by a user, to be shared and/or implemented separately. In contrast, ¶ 0004 of SHAFER merely discloses a management interface that that controls configuring a router.

In the Response to Arguments (Final Office Action, pp. 11 and 12) the Examiner indicates that ALFIERI is relied upon for allegedly disclosing virtual routers that share resources. While ALFIERI does disclose that a router may be configured to have virtual routers (ALFIERI, ¶ 0034), ALFIERI does not disclose or suggest a plurality of different user configurable sharing configurations, nor does ALFIERI disclose or suggest that the plurality of different user configurable sharing configurations specifies which processes and/or resource are to be shared and/or implemented.

For at least the foregoing reasons, Applicant submits that amended claim 8 is patentable over ALFIERI and SHAFER, whether taken alone or in any reasonable combination. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of amended claim 8 under 35 U.S.C. § 103(a) based on ALFIERI and SHAFER.

Claim 9 depends from claim 8. Therefore, claim 9 is patentable over ALFIERI and SHAFER, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to amended claim 8. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of claim 9 under 35 U.S.C. § 103(a) based on ALFIERI and SHAFER.

Rejection under 35 U.S.C. § 103(a) based on AYERS and SHAFER

Claim 23 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS and SHAFER. Applicant traverses this rejection.

Amended independent claim 23 recites a device-implemented router comprising a device-implemented means for performing routing processes to determine routing for received packets; a device-implemented means for performing forwarding processes to forward the received packets to an appropriate destination; a device-implemented means for implementing control resources; a device-implemented means for implementing data resources, including physical specifications of the device-implemented router; and a device-implemented means for implementing a plurality of virtual routers that share ones of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources, based on a plurality of programmably modifiable resource sharing configurations that are programmably modifiable by a user to share resources between the plurality of virtual routers, in order to implement different device-implemented virtual router configurations based on different sets of network requirements, where the programmably modifiable resource sharing

configurations specify which of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources are to be shared between the plurality of virtual routers and specify which of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources are not to be shared between the plurality of virtual routers. AYERS and SHAFER, whether taken alone or in any reasonable combination, do not disclose or suggest one or more features of amended claim 23.

For example, ALFIERI and SHAFER do not disclose or suggest a device-implemented means for implementing a plurality of virtual routers that share ones of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources, based on a plurality of programmably modifiable resource sharing configurations that are programmably modifiable by a user to share resources between the plurality of virtual routers, in order to implement different device-implemented virtual router configurations based on different sets of network requirements, where the programmably modifiable resource sharing configurations specify which of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and

the device-implemented means for implementing data resources are to be shared between the plurality of virtual routers and specify which of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources are not to be shared between the plurality of virtual routers, as recited by claim 23. The Examiner admits that AYERS does not disclose user programmable resources and relies on ¶ 0004 of SHAFER for allegedly disclosing this feature. (Final Office Action, p. 5.) While not acquiescing in the Examiner's allegation regarding previously presented claim 23, Applicants submit that this alleged disclosure of SHAFER does not disclose or suggest the above-mentioned feature of amended claim 23.

As discussed above, ¶ 0004 of SHAFER does not disclose or suggest a device-implemented means for implementing a plurality of virtual routers that share ones of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources, based on a plurality of programmably modifiable resource sharing configurations that are programmably modifiable by a user to share resources between the plurality of virtual routers, in order to implement different device-implemented virtual router configurations based on different sets of network requirements, where the programmably modifiable resource sharing configurations specify which of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding

processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources are to be shared between the plurality of virtual routers and specify which of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources are not to be shared between the plurality of virtual routers, as recited by amended claim 23. Rather, this section of SHAFER discloses a network management interface that provides access to software modules and other resources on a router. The network management interface allows a user to configure the router to more efficiently manage router resources and to manage relationships with other routers.

Applicant notes that this section of SHAFER does not disclose that the management interface allows a user to configure a sharing of resources between routers. Rather, SHAFER discloses that the management interface allows a user to manage relationships with other routers. The Examiner makes an unsupported assumption that managing relationships with other routers reasonably corresponds to configuring a sharing of resources between routers. Applicant submits that relationships between routers (for example, how data is transmitted an/or received) may be managed without sharing resources. Therefore, Applicant submits that SHAFER's disclosure that a management interface allows a user to manage relationships with other routers is insufficient to reasonably disclose or suggest configuring a sharing of resources between routers.

Moreover, even if the management interface of SHAFER could reasonably be construed as disclosing configuring a sharing of resources between routers, Applicant submits that amended claim 23 recites more than just configuring a router. Rather, claim 23 specifically recites that the plurality of virtual routers share resources, of the device-implemented means for implementing a plurality of virtual routers, based on a plurality of programmably modifiable resource sharing configurations that are user modifiable and that specify which of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources are to be shared between the plurality of virtual routers and specify which of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources are to be separately implemented by the plurality of virtual routers. Thus, amended claim 23 specifically recites that the device-implemented means for performing various router processes and device-implemented means for implementing various router resources can be reconfigured, by a user, to be shared and/or implemented separately. In contrast, ¶ 0004 of SHAFER merely discloses a management interface that that controls configuring a router.

For at least the foregoing reasons, Applicant submits that amended claim 23 is patentable over AYERS and SHAFER, whether taken alone or in any reasonable combination. Therefore, Applicant requests that the Examiner reconsider and

withdraw the rejection of amended claim 8 under 35 U.S.C. § 103(a) based on AYERS and SHAFER.

Rejection under 35 U.S.C. § 103(a) based on AYERS, ALFIERI, and SHAFER

Claims 1 and 16 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS, ALFIERI, and SHAFER. Applicant traverses this rejection.

Amended independent claims 1 and 16 recite features similar to (yet possibly of different scope than) features described above with respect to claim 23. While not acquiescing in the rejection of claims 1 and 16, Applicant submits that the disclosure of ALFIERI does remedy the deficiencies in the disclosures of AYERS and SHAFER, as set forth above with respect to amended claim 23. Therefore, Applicant submits that amended claims 1 and 16 are patentable over AYERS, ALFIERI, and SHAFER, whether taken alone or in any reasonable combination, for at least reasons similar to the reasons given above with respect to claim amended 23. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of amended claims 1 and 16 under 35 U.S.C. § 103(a) based on AYERS, ALFIERI, and SHAFER.

Rejection under 35 U.S.C. § 103(a) based on AYERS, SHAFER, and ALFIERI

Claims 24-26 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS, SHAFER, and ALFIERI. Applicants traverse this rejection.

Claims 24-26 depend from claim 23. While not acquiescing in the rejection of claims 24-26, Applicant submits that the disclosure of ALFIERI does remedy the deficiencies in the disclosures of AYERS and SHAFER, as set forth above with respect to amended claim 23. Therefore, Applicant submits that claims 24-26 are patentable over AYERS, SHAFER, and ALFIERI, whether taken alone or in any

reasonable combination, for at least reasons similar to the reasons given above with respect to amended claim 23. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of claims 24-26 under 35 U.S.C. § 103(a) based on AYERS, SHAFER, and ALFIERI.

Conclusion

In view of the foregoing proposed amendments and remarks, Applicant respectfully requests the Examiner's reconsideration of this application and the timely allowance of the pending claims.

Should the Examiner find some issue to remain unresolved, or should any new issues arise which could be eliminated through discussions with Applicant's representative, then the Examiner is invited to contact the undersigned by telephone to expedite prosecution of this application.

As Applicant's remarks with respect to the Examiner's assertions are sufficient to overcome these assertions, Applicant's silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such assertions (e.g., whether a reference constitutes prior art, reasons to modify a reference and/or to combine references, assertions as to dependent claims, etc.) is not a concession by Applicant that such assertions are accurate or such requirements have been met, and Applicant reserves the right to analyze and dispute such assertions/requirements in the future.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,
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